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# ECONOMIC GROWTH AND PRODUCTIVITY

## Analyzing the Political Economy of The Determinants of European Union Regional Transfers

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**Abstract**

This work project uses a political economy approach to explain the determinants and the differences in the allocation of the European Union Regional Transfers during the 2007-2013 and 2014-2020 European Multiannual Financial Frameworks. This work project uses two regression analysis to conclude that the economic condition of a member state is the biggest determinant of EU regional transfers, however with the economic growth of the "poorest" EU member states and the tightening of the economic and development gap between Western and Eastern Europe, other factors, mainly attitudes towards the EU and a member state track record managing EU transfers, play a bigger role in their allocation.

**Keywords:** EU regional transfers, Multiannual Financial Framework, economic, political

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## I. Introduction

On the 5th of November 2019 a group of 16 EU heads of government met in Prague, this group was known as the "Friends of Cohesion" and consisted in the heads of government of the countries that have benefited more from EU Regional Transfers in the past 15 years (See appendix 1 and 2), Estonia, Croatia, Malta, Slovenia, Bulgaria, Cyprus, Lithuania, Latvia, Romania, Italy, Portugal, Greece and the Visegrad 4 countries (Poland, Slovakia, Hungary, and the Czech Republic). The goal of this encounter was clear, to show opposition to the proposed cuts in regional Transfers in the next EU Multiannual Financial Framework (MFF) or EU multiannual budget for 2021-2027, mainly in the Cohesion Policy funds and in the European Regional Development Fund (ERDF). The EU multiannual budget is always a difficult subject to find an agreement on, there are always discussions on who should contribute more, the amount that each country pays and how much of the transfers are allocated to each member state, but this time the discussions were even more difficult than usual due to the departure of the United Kingdom from the European Union, the block was losing its second-biggest net payer, all of this before the COVID-19 pandemic.

*"Making Europe's regions and cities more competitive, fostering growth and creating jobs"* This is the official saying of the European Regional Policy, it targets regions and cities in the European Union in order to support the creation of jobs, business competitiveness, economic and sustainable development, by financing up to 80% of public investment in key projects to reduce the economic development gap between European regions and to foster economic cohesion (Anderson, 1995).

The EU regional policy can be of the upmost importance in several countries, for transport infrastructures, both roads and rails as well as social (education, health, social services) and economic (IT, energy) infrastructures (Cerniglia et Saraceno, 2020). Cohesion Funds

(CF) and ERDF expenditures fund around one sixth of the overall European public investment, in more recent years they have supported approximately 40% of total public investment in most CEE[1] countries, but their role is also significant in some other countries, such as Greece, Spain, and Portugal; between 2015 and 2017 more than 75% of the public investment made by the Portuguese Government was financed by regional transfers (Pinheiro, 2017), but the expenditures with regional transfers also produce significant economic spillovers in favor of more developed regions and countries in the EU (Cerniglia et Saraceno, 2020).

The EU regional transfers, are part of the EU´s seven-year framework regulating its annual budget (Multiannual Financial Framework) and like stated before, are delivered through two main funds: the European Regional Development Fund (ERDF) and the Cohesion Fund (CF). According to the EU Commission the ERDF main goal *is to strengthen economic and social cohesion in the European Union by correcting imbalances between its regions*, and the CF *aims to reduce economic and social disparities and to promote sustainable developmen*t .

For this paper only the two above mentioned funds will be considered as regional Transfers or Cohesion Policy, they together with the European Social Fund (ESF), European Maritime and Fisheries Fund (EMFF) and the European Agricultural Fund for Rural Development (EAFRD), where the common agricultural policy (CAP) is included, make up the European Structural and Investment (ESI) Funds.

The EU regional policy budget and rules are decided by both the Council and the European Parliament beginning with a proposal by the Commission, each Member State draws a National Strategic Reference Framework for the period of seven years, containing the strategy for how the transfers will be used including lists of individual projects, then

[1] CEE – Central and Eastern Europe

the EU Commission uses what it calls, the official criteria also known as transparent procedures to allocate the transfers among the member states. The supervision takes place through national or regional authorities depending on the degree of self-governance and local autonomy (Ciffolilli, 2009). Amongst academics, it is not consensual whether the regional transfers have led to higher regional convergence, Cappelen et al. (2003) argues that EU regional support through the structural funds has had significant and positive impact on the convergence around Europe while Beugelsdijk and Eijffinger (2005), acknowledge that there has been a significant level of GDP growth at both a country and regional level, however they could not connect this to EU transfers .

Even tough convergence is a relevant topic, one of the most interesting subjects regarding EU regional transfers is what are its major determinants and how they affect the size of the grants that each EU member receives. When it comes to the distribution criteria, it was usually taken as granted that they were technocratically decided and implemented by member states and the European Commission and that the criteria for allocations were strictly economic, however, the literature that will be examined shows that the official criteria may not be the only determinant when it comes to EU regional transfers.

This paper will follow the subsequent structure, first the EU regional policy, funds, and its importance in the European Union was explained, then a literature review will be made to access the known determinants and the factors that influence the functioning and the establishment of the EU regional policy, based on the existence literature two different regression models will be used to test the effects of the determinants and how they have changed between the 2007-2013 MFF and the 2014-2020 MFF, afterwards all of this will be analyzed when drawing the conclusions.

## II. Literature Review

The initial literature regarding what might affect the regional transfers in the European Union stated that the economic situation of each country determined the amount of money that each one would obtain, Tangermann, (1997), Anderson and Tyers, (1995), Courchene et al, (1993) in their analysis of EU regional policy and its challenges with the upcoming enlargement of 2004, concluded that indicators such as unemployment, GDP per capita and the overall percentage and weight of the agriculture sector in the economy are the major factors and that countries with a higher unemployment, low GDP per capita and/or where the agriculture sector still represents a big part of the economy are the main receivers of EU regional transfers.

However, since the start of the 21st Century the literature evolved and now the emphasis is on the fact that even tough economic factors remain extremely important, they don´t tell the whole story and are not sufficient to explain the distribution of EU funds (Bodenstein et and Kemmerling, 201), (Kalman, 2011), (Citi and Justesen, 2020).

One of this determinants is Partisan Politics, Citi and Justesen, (2020) pointed out in their analysis , of the net fiscal position of each member state between (1979-2014), and several national-level political and economic indicators, that governments with a center-right profile received more in EU transfers than other member states, one reason for this can be found in their other finding , that the voting power of each member state in the European Council is unrelated to a more positive fiscal balance which means that countries will form coalitions with ideological similar governments and if they are the majority, they will be able to receive more in regional transfers, this ideological similarities can be of two types, of overall ideology or in matters of European redistributive policy. On a regional and national level, politics also determines the fiscal position where regional governments and mayors find themselves in, Kalman (2011)

studied the allocation patterns in Hungary between 2004 and 2008, Dellmuth & Stoffel (2012) in Germany between 2000-2006 and Dotti (2015) during the same time period in Germany, but also in France, Italy, Spain and the UK and they all reached similar conclusions, that a region/administrative region will likely receive more EU funding if the governing party is the same as the central government.

An additional determinant that receives attention in the literature is the Absorption Capacity, in other words, how countries have used EU funds in the past and their capacity to do it in an efficient and lawful way in the future. Dellmuth (2011) indicates in her analysis of the allocation of EU funds in the EU-15 between 2000-2006 that the EU Commission in constitutionally weak regions (with a history of misusing EU funds and/or higher corruption, low democratic indications, weak institutions) takes in consideration the "track record" of the use of EU funds in the previous cycles, due to the fact that the misuse of EU funds among other things has an negative effect in the EU´s reputation, Heijman and Koch, (2011) when analyzing the predicted vs actual allocation of EU transfers between 2007-2013 concluded that between the highest recipients of EU transfers, Bulgaria and Romania had received far less than predicted compared to countries like Portugal, Spain, Czechia, and Poland, they state that two factors behind could have been their expertise to attract EU funds but also their inefficiency and lack of projects to use the money on.

. The fourth determinant addressed in the literature is the Degree of self-governance, how decentralized is the political power in a EU member state. Védrine (2018) analyzed the relation between the degree of decentralization of public policy and the Cohesion Policy and describes that spatial interactions[2] in a country during the allocation of EU transfers are higher when the policy making is more decentralized, simply put, it establishes the

[2] Spatial Interaction is a dynamic flow process from one location to another.

relation between more EU funds and a decentralized system of governance, however it does not provide an explanation on why this interaction exists, Bodenstein and Kemmerling, (2011) provide this explanation, they studied the distribution of EU funds in 137 regions between 2000-2006 and found that the more political competencies a region has, the more Structural Funds transfers per capita the region receives, the reason behind this is that federal regions have more lobbying and bargaining power both at a European and national level than regions in unitary states, and that by decentralizing the political power EU funds can be used and allocated to projects in a more efficient way, for example, if Saxony in Germany needs more EU transfers, the minister president or a member of the regional government can go to Brussels and lobby directly with the Commission and the money can be distributed by the federal government without many bureaucracies, on the other hand a region like Alentejo in Portugal[3] does not have that ability as the Portuguese Government creates special programs in each of its 7 NUTS II regions in order to distribute and allocate the money coming from Brussels. This findings were in part corroborated by Chalmers (2013), that examined the connection between regional authority and EU funds, although only for what he calls "Convergence Funds"[4], that includes not only the CF and ERDF but also the European Social Fund.

One recurrent theme in the literature regarding EU regional transfers but not yet linked to any determinant is Euroscepticism. It is believed that the EU regional transfers reduce Euroscepticism and improve the image of the EU in the member states, Osterloh, (2011) in his study of public opinion towards the European Union and regional transfers, noted that EU Structural Funds had positive impact on the positive perceptions of the EU and concluded that an increase in transfers per capita from the EU to a region by 100 Euros

[3] The least centralized country in Europe according to Lijphart (1999)
[4] Convergence and Competitive & Employment Funding

boosts the likelihood of one being positive about the EU by approximately 5 to 15% however this study has limitations since it was done using data from the 1994-1999 structural funds and does not include any of the countries that have entered the EU since 2004. Dąbrowski, et all (2019) provides an updated version of this paper for the period between 2008-2015 and reached a similar conclusion that there is a positive relation between more EU regional transfers and the public perception of the EU, furthermore a deteriorating economic condition fuels more negative opinions and views on the EU. Moreover, Jackson et al (2011), demonstrated in their analysis of the attitudes of Poles towards the EU, that there was a more positive view of the EU by the Polish general public after entering in 2004 compared to before, and that this improved view of the EU was related to the size of EU transfers and gains in personal income.

## III. Data and Methodology[5]

Based on the literature review, one was able to select the variables that will be tested. The dataset consists in yearly data collected for all EU member states (including the United Kingdom) over the period between 2000 and 2020.

The study entails two regression analysis comparing two different Multiannual Financial Frameworks, the dependent variable will be the amount transfers and grants transferred to EU members states under the European Regional Development Fund (ERDF), and the Cohesion Fund (CF) , per capita in the MFF of 2007-2013 and 2014-20, provided by the EU Commission, using the ERDF and CF seems appropriate since they are the two funds that make up the EU regional policy.

There will be five type of explanatory variables, each type will have several explanatory variables. The first one is economics factors, based on the literature review the

[5] More details Appendix 3

explanatory variables will be the unemployment rate, the size of the agriculture sector and the GDP per capita, it is expected that the first two will have a positive sign, differing from the GDP per capita that is expected to have a negative sign. Since the 2014-2020 MFF was negotiated during European Debt Crisis this study will add to the literature new explanatory variables such as National Debt and the poverty rate to test if the public finances of a country and the overall poverty have any impact in the allocation of EU transfers. The next one is the partisan politics, the composition of the European Council between January and June of 2006 and 2013 will be used to detect if there is any relation between the political affiliation of a government and the outcome of the Multiannual Financial Framework, the European Party affiliation will be the variable. For the absorption capacity, the explanatory variables to be tested will be the absorption rate, how efficiently each member state absorbed and spent Structural Funds in the previous MFF, and also the fraud detected and reported as a percentage of cohesion policy funds during the previous MFF[6]. One of the reasons for the use of these variables is that Dellmuth (2011) points out that the EU considers the effect that the mismanagement of the regional transfers can have in its reputation and since this study was done with data that precedes the entry of countries from Central and Eastern Europe one of the objectives is to study if these concepts are still valid after the EU enlargement of 2004.

When it comes to the degree of self-governance the principles of Bodenstein and Kemmerling, (2011) will be tested and unlike previous studies it will include the new EU member states that were not included in their paper, the Lijphart Regional Authority Index will be used to measure the degree of self-governance in a EU member state.

The final explanatory variables will assess Euroscepticism, this study will be among the first where Euroscepticism is tested as a determinant of EU regional transfers, the logic

[6] No data was available prior to the 2007-2013 MFF, so that data was used for both regressions

behind this addition is the confidence expressed in the literature review that EU transfers have a positive impact in the attitudes of the general public towards the EU, and that the EU might intentionally or unintentionally use its transfers to boost its image in more Eurosceptic countries, to measure Euroscepticism it will be used the answer to the a question asked every during the Eurobarometer survey *"Do you think (our country's) membership is: a good thing; a bad thing; neither good nor bad; do not know?"* , more specifically the percentage that answered that EU membership in their country was a bad thing, this way of analyzing Euroscepticism in widely present in literature (Serricchio et al. 2013), (Gabel and Palmer, 1995), (McLaren, 2004). But Euroscepticism can also express itself in other forms, Goodliffe, (2015) and Ultan & Ornek (2015) found a relation between the backlash against European integration, its perceived Democratic Deficit and the success of anti-European Union and Eurosceptic parties in the European Parliament Elections, moreover Van Spanje and De Vreese, (2011) state that diverse opinions towards the EU influenced voting intentions in the 2009 EP elections, and that these effects were greater in countries with more polarized political positions regarding European identity and integration, so a variable measuring the success of Eurosceptic parties in the EP elections will also be tested.

The methodology used will be to calculate multiple regressions for each Multiannual Financial Framework using the same explanatory variables, in order to make comparisons between them and draw final conclusions, the regressions will be determined using the program Stata 15. The amount of observations is restricted and due to that the general specification will use ten explanatory variables that will be as follows:

$$\text{Log } RGT\text{ t} = \beta_0 + \beta_1 GDPpc + \beta_2 UNEMP + \beta_3 PRMSCT + \beta_4 NTDEBT + \beta_5 POVRT + \beta_6 POLAF + \beta_7 RGT_{fraud} + \beta_8 ABSP + \beta_9 SELFG + \beta_{10} EUROSPM + \beta_{11} EPELECT$$

In each MFF, the initial model will test the economic variables, the other explanatory variables will be added and excluded as their significance is tested. This study will use a higher level of significance for the explanatory variables. In fact, with the conducted significance tests some variables could seem insignificant due to the small sample size. That is why this study will have a higher than usual 15% significance level.

### *1. Serial Correlation*

Before studying the interactions between the EU regional transfers and the explanatory variables we need to find if there is independency across explanatory variables or a cross sectional dependency and correct it if needed. Several tests, such as Breusch Pagan test (Brooks, 2008), and Pesaran CD, are used to test for cross sectional dependency also known as spatial autocorrelation.

In this work project the Breusch Pagan test was applied, the test done on the regressions using level variables indicated an autocorrelation of order 1 to 4, it could possibly mean that the standard errors are wrong. and/or the coefficients are imprecise. Hence, it might mislead the final conclusions (Brooks, 2008).

In order to fix the cross-section dependency and autocorrelation, one must subtract from the baseline model a lagged version of the same model with a new coefficient ρ ( Brooks (2008, p.146-153), where $X_t$ is the vector of all the independent variables, $\beta'$ the vector of the coefficients, $u_t$ the residual variable error term, $y_t$ at time t the dependent variable, and $\rho$ a coefficient:

$$y_t - \rho y_{t-1} = \beta' X_t - \rho \beta' X_{t-1} + u_t, \quad \text{with } u_t = \varepsilon_t - \rho \varepsilon_{t-1}$$

In this work project, first differences will be used to correct the serial correlation (Brooks 2008) , $\rho$ will be set at $\rho = 1$ even though it ought to be estimated,

$$y_t - y_{t-1} = \beta' X_t - \beta' X_{t-1} + u_t \;\Leftrightarrow\; \Delta y_t = \beta' \Delta X_t + u_t$$

Next, several Dickey Fuller tests will be done on the model and according to the results (Appendix 4), there is a presence of one unit root in every series of the model, due to that in order to make the series stationary all the variables need to be differentiated. This will be the baseline model that will be used in the analysis:

$$\Delta(\text{Log } RGT\text{ t}) = \beta_0 + \beta_1 \Delta GDPpc + \beta_2 \Delta UNEMP + \beta_3 \Delta PRMSCT + \beta_4 \Delta NTDEBT + \beta_5 \Delta POVRT + \beta_6 \Delta POLAF + \beta_7 \Delta RGT_{fraud} + \beta_8 \Delta ABSP + \beta_9 \Delta SELFG + \beta_{10} \Delta EUROSPM + \beta_{11} \Delta EPELECT$$

The regressions will be estimated with Ordinary Least Squares, this method does not allow a long run equilibrium, in addition since the number of observations are small the probability of finding a long-term equilibrium is also extremely low, nevertheless, this methodology captures it (Brooks, 2008).

## IV. Empirical results and Analysis

Before running the model, the Variance Inflation Factor test, and as previously shown the Breusch tests were done in order to confirm the normality of residuals and they confirm that the model is not in violation of autocorrelation, multicollinearity, and heteroscedasticity.

### *1. Multiannual Financial Framework 2007-2013*

The results are present on Table 1. The first Model (M1) was done with the three economic variables most present in the literature, the GDP per capita, the Unemployment rate and the weight of the agriculture and fishing sectors in a country´s economy, this three economic explanatory variables will be the starting point in both regression models, as expected all of them showed at least some significance, a positive effect from the unemployment (*unemp*) and weight of the primary sector (*prmsct*), and a negative effect for the GDP per capita (*gpdpc*), in this first model the adjusted R square had a good explanatory strength.

For the second model (M2) two more economic explanatory variables were included, in order to test the influence of poverty and the situation of a member state public finances in the allocation of EU regional transfers, the poverty rate and the national debt as a percentage of the GDP. The overall strength of the model increased slightly, the *povrt* had a positive sign and significance, however the other explanatory variable added, *ntdeb*t, was not significant, all of the explanatory variables that were included in both M1 and M2 remained significant.

Model 3 (M3) tests the effects of the political affiliation of each government , the national debt was taken out of the model and all the other explanatory variables were maintained. The new explanatory variable had a positive sign, and it was significant, additionally it also increased the overall significance and strength of the model. For the subsequent tests, all of the explanatory variables of M3, *gpdpc, unemp, prmsct povrt* and *polaf* were kept with the purpose of testing the effect of the other explanatory variables.

**Table 1: Regression results**[7]

| | M1 | M2 | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|---|
| Δgdppc | -10.81* | -10.16* | -9.42* | -9.06* | -8.87* | -9.90* |
| | (-3.06) | (3.13) | (-2.86) | (-2.68) | (-1.95) | (-1.71) |
| Δunemp | 7.87* | 8.24* | 8.41* | 7.32* | 7.61* | 7.49* |
| | (5.58) | (6.15) | (6.61) | (5.81) | (5.38) | ( 5.51) |
| Δprmsct | 11.81** | 10.78** | 11.24** | 12.30** | 13.31** | 13.25** |
| | (4.91) | (3.92) | (4.13) | (4.82) | (3.71) | (4.32) |
| Δntdebt | | 1.73 | | | | |
| | | (0.83) | | | | |
| Δpovrt | | 4.01◦ | 3.83◦ | 5.11◦ | 4.26◦ | 3.71◦ |
| | | (2.01) | (1.33) | (3.92) | (2.81) | (2.52) |
| Δpolaf | | | 0.52◦ | 1.01◦ | 0.28◦ | 1.49◦ |
| | | | (0.05) | (0.58) | (0.08) | (0.61) |
| Δrgtfraud | | | | 0.37 | | |
| | | | | (0.91) | | |
| Δabsp | | | | 1.85 | | |
| | | | | (1.23) | | |
| Δselfg | | | | | -3.72 | |
| | | | | | (-2.81) | |
| Δeurospm | | | | | | 1.14 |
| | | | | | | (0.56) |
| Δepelect | | | | | | -0.03 |
| | | | | | | (3.64) |
| Adj-$R^2$ | 0.616 | 0.651 | 0.7361 | 0.6353 | 0.5921 | 0.5191 |
| F-statistic | 11.31 | 9.45 | 8.18 | 6.75 | 10.84 | 6.39 |

. ◦Significant at 15%; *Significant at 10%; **Significant at 5%; ***Significant at 1%.

In Model 4 (M4) the new explanatory variables added in order to test the absorption capacity had a positive sign but were not significant, the overall explanatory strength of the model decreased. Model 5 (M5) takes into consideration the degree of self-governance , in this model all the significant explanatory variables from M3 and M4 remained, overall *selfg* had a negative effect on the value of EU regional transfers, and it was not statistically significant, the overall strength of the model decreased compared to all the previous models.

[7] Standard errors in parentheses, robust to potential correlation of errors and heteroscedasticity

For sixth model (M6) the variable *selfg* was removed due to its insignificance, M6 considers the two variables more commonly used to measure Euroscepticism, the share of the population that considers their countries membership of the European Union a "bad thing", and the share of the vote for anti-EU and Eurosceptic parties in the European Parliament Elections prior to the MFF. The variable *eurospsm* had a slight positive effect on the dependent variable, and *epelect* a negative sign, but no variable showed significance, all the other explanatory variables remained significant, but the model was not significant.

The results of this first regression model confirm a lot of the past literature regarding the determinants of EU regional transfers, economic factors were the main driver of the amount of transfers that were allocated to each country. A rich more developed member state with higher GDP, and lower unemployment receives fewer transfers than a more rural member state with a smaller GDP and higher unemployment. This means that the EU regional policy in the 2007-2013 MFF was achieving its purpose of trying to correct the economic and social disparities between EU member states, another indicator that showed a positive and significant sign was the poverty rate, that checks with what the other economic indicators tell us, poorer member states are the main targets of the EU regional policy.

As for the political affiliation, according to the results, center right governments have a small advantage when the allocation of EU transfers its completed, thus confirming previous studies (Citi and Justesen, 2020), but this can also be explained by the fact that the EU member states that were part of the CEE group of countries tend to be poorer than countries in western Europe and also more right wing and conservative in their politic

ideology (Hloušek & Kopecek, 2010), the following regression analysis will provide a better understanding regarding this matter.

The level of national debt was insignificant for the allocation of EU transfers in this MFF, one of the reasons for this can be that prior to the 2008 financial crisis and recession national debt levels with one or two exceptions were similar throughout EU member states (Lojsch et al. 2011) .

The absorption capacity also did not have a significant impact on the allocation of EU transfers in the first MFF, it can be explained by the fact that this was the first MFF with the 10 new members states that joined in 2004 EU enlargement and also Bulgaria and Romania that joined in 2007, so all of this countries did not have any real history managing EU funds as full EU members states, the new model for the 2014-2020 MFF will give us a better understanding about this subject.

Unlike Bodenstein and Kemmerling (2011) the degree of self-governance had a negative effect; and it was not significant, an explanation for these results can be that Bodenstein and Kemmerling (2011) in their study did not include the new EU member states that joined from 2004 onward all of them being unitary states, unlike several EU members such as Germany, Austria, Belgium, Spain, or Italy that are defined as federations or devolved states[8]

To conclude, these results validate some of the assertions regarding the allocation of EU transfers and that the main determinants are the overall prosperity and structure of their economy, but that there is still room for political influence in the process. The following regression model will help us getting a better understating, as will show if the results are similar or if there were any changes from one MFF to another.

[8] System of government where the central government devolves a number of powers to regions, some with a larger degree of autonomy than others.

### *2.Multiannual Financial Framework 2014-2020*

The results are presented on Table 2. In the first model one (M1), as expected, all of the explanatory variables had at least some significance, the unemployment and weight of the primary sector had a positive effect, and the GDP per capita a negative effect, the adjusted R- square had explanatory strength.

In Model 2 (M2) the overall strength of the model increased, however, the unemployment rate lost significance and the poverty rate did not show any significance. Likewise, the national debt showed no significance and an unexpected, a negative effect, the other explanatory variables remain significant.

For Model 3 (M3), the poverty rate and national debt were taken out of the model and even though the unemployment was also non-significant in M2, because it was significant in M1, this explanatory variable was kept. The variable *polaf* despite the fact that it had a slight positive sign it was not significant, and it also decreased the overall significance and quality of the model. For the following tests, the two non-significant variables *unemp* and *polaf* were excluded.

**Table 2 : Regression results**[9]

| | M1 | M2 | M3 | M4 | M5 | M6 | M7 |
|---|---|---|---|---|---|---|---|
| Δgdppc | -7.34* | -6.16* | -5.08* | -5.99* | -6.19* | -6.87* | -4.46* |
| | (-1.66) | (2.61) | (-3.46) | (-3.68) | (-0.668) | (-1.57) | (-1.71) |
| Δunemp | 6.32◦ | 6.57 | 8.41 | | | | |
| | (13.04) | (13.81) | (15.73) | | | | |
| Δprmsct | 8.47** | 9.78** | 8.36** | 10.53** | 9.53** | 9.81** | 10.65** |
| | (2.46) | (3.03) | (2.24) | (3.59) | (3.19) | (3.32) | (3.98) |
| Δntdebt | | -2.28 | | | | | |
| | | (-6.84) | | | | | |
| Δpovrt | | 2.51 | | | | | |
| | | (10.51) | | | | | |

[9] Standard errors in parentheses, robust to potential correlation of errors and heteroscedasticity

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Δpolaf | | | 3.68<br>(1.12) | | | | |
| Δrgtfraud | | | | -0.005<br>(-0.123) | | | |
| Δabsp | | | | 3.23*<br>(0.10) | | | 3.58*<br>(0.83) |
| Δfedrl | | | | | -0.57<br>(-1.62) | | |
| Δeurospm | | | | | | 2.68*<br>(6.13) | 2.14*<br>(6.36) |
| Δepelect | | | | | | 0.58<br>(5.78) | |
| Adj-$R^2$ | 0.6235 | 0.6654 | 0.5365 | 0.6353 | 0.5532 | 0.6012 | 0.7513 |
| F-statistic | 11.68 | 10.90 | 8.07 | 7.64 | 10.71 | 7.86 | 6.31 |

. °Significant at 15%; *Significant at 10%; **Significant at 5%; ***Significant at 1%.

In Model 4 (M4) the absorption rate and the percentage of fraud detected in previous MFF´s were added in order to test their impact, the latest did not have any impact on the amount of regional transfers and was also insignificant, in contrary, the *absp* had a positive impact in the amount of transfers, and it was also statistically significant, the overall explanatory strength of the model increased compared to M3 even though its explanatory strength is still inferior to M2.

Model 5 (M5) takes into consideration the degree of self-governance, in this model the three significant economic variables were kept, the explanatory variables used to test the absorption capacity were also dropped. The *absp* was dropped even though it was significant with the purpose of assessing in more detail the effect of the degree of self-governance, *fedrl* had a negative effect of the value of EU regional transfers, and it was not statistically significant, the overall strength of the model decreased compared to the previous one M4.

In the sixth model (M6) the variable *fedrl* was removed due to its insignificance, M6 considers the two variables used to evaluate Euroscepticism, both new variables had a

positive effect on the dependent variable however only the explanatory variable *eurospm* showed any significance, the two economic explanatory variables remained significant, the GDP per capita with a negative effect and the weight of the agriculture sector with a positive sign. The overall explanatory quality of M6 was good and increased compared to the previous one.

The seventh and last model (M7) was done with all the significant explanatory variables identified throughout the models. All of them are significant and have a positive impact on the dependent variable except for the GDP per capita that has an negative effect, the explanatory power of M7 its the highest of all the models.

There are some similarities between the determinants of the EU regionals transfers in the 2007-2013 MFF, and 2014-2020 MFF, however there are also some stark differences.

Firstly, from the first regression model to the second the GDP per capita and weight of the Agriculture sector remained significant variables, and just like in the first MFF it is in line with much of the literature, nevertheless, the unemployment rate and the poverty rate lost significance, it can be explained by the fact that new EU members see a significant economic growth and at a faster rate than the in rest of the EU and as a consequence the disparities between the "rich" and "poor" countries are reduced (Breuss, 2001), (Leonardi, 2006). In fact, this is what happened to the CEE countries right after the EU enlargement of 2004, the new EU member states were able to reduce unemployment and grow at a faster rate than the EU-15 countries, thus reducing the economic development gap between them, although the gap it still comprehensive, mainly when it comes to infrastructure and the overall structure of their economy, and a real converge it still years and maybe decades away of being accomplished (Rapacki and Prochniak, 2009). Therefore, some economic indicators lost significance like the unemployment and poverty rate did, however because there are still big disparities and structural differences

between them, explanatory variables such as the GDP per capita and weight of the agriculture sector are still significant.

The level of national debt was not significant in both MFF´s, implying that the situation of a member state public finances does not influence the allocation of regional transfers.

Like in the first regression model the political affiliation had a positive sign, yet it lost the significance, this results go against the first regression model and may indicate that nature of the partisan politics in the European Council has changed from the typical partisanship that is present in every EU member, between the overall ideology and philosophies of Socialists, Social or Christian Democrats, Liberals and Conservatives to a partisanship based on matters of European redistributive policy, just as Citi and Justesen, (2020) had also suggested, and that´s why EU leaders in the European Council started crossing parties lines in order to form issue-based coalitions (Tallberg and Johansson, 2008), the recent group of 16 EU member states "Friends of Cohesion" confirms this idea, that was an issue-based coalition made of socialists, liberals and conservatives heads of governments all belonging to different Party Families united under the same ideas and objectives regarding EU redistributive policy. The absorption capacity was significant, specifically the absorption rate with a positive sign, meaning that the results corroborate Dellmuth (2011) assertion that the European Union takes into consideration a country track record when allocating EU transfers, countries with a good track record on the 2007-2013 MFF found themselves in a better position in the subsequent MFF.

Similarly, to the first regression the degree of self-governance had a negative sign but was insignificant thus confirming the idea that because more unitary states joined the EU and those states are the main receipts of regional transfers, the effect described in (Bodenstein & Kemmerling, 2011) was possibly lost or it became irrelevant.

Lastly, one of the major differences between both regressions is the significance of Euroscepticism, the share of the vote for Eurosceptic parties changed sign but remained insignificant, however, the negative opinions towards the EU membership of their country seems to have a positive sign in the allocation of regional transfers. As a matter of fact, trust in the European Union eroded and Eurosceptic attitudes increased during the financial crisis (Bãcescu, 2014), (Serricchio et al, 2013) plus according to the literature, EU transfers boost the EU´s image, the model connects attitudes towards the EU with the allocation of EU regional transfers and suggests that the EU might have purposely or not tried to tackle the rising Euroscepticism by allocating more funds to more Eurosceptic countries and regions, Oberhofer and Bachtrögler, (2018) support this idea, they analyzed the implementation of EU transfers in France together with the support for the Eurosceptic far-right politician Marine Le Pen and found that economic growth prompted by EU transfers was noticeable to the French electorate and stalled her electoral performance.

In conclusion from the 2007-2013 MFF to the MFF 2014-2020 economic factors remained the most essential factors for the allocation of EU transfers, however, they lost some importance in their allocation to political factors like the countries track record managing funds and the attitudes of their citizens towards the European Union.

## V. Limitations and suggestions for further research

The original goal of this work project was to make a casual analysis of the determinants of EU regional transfers, however since the methodology that this study followed was two regression models it was only possible to test dependence amongst variables therefore it was not possible to prove causality. Another limitation of this study was the small sample size and the lack of data that is available regarding the overall corruption in EU

countries, the Corruption Perception Index by Transparency International is the most widely indicator used to measure corruption however since perception is at the heart of the index, it can be difficult to define and measure it (Louis, 2007), so this indicator was not used, other weakness regarding corruption was the fact that there was not any data regarding Fraud detected and reported with EU funds for the period prior to 2007-2013, so that data had to be used in both regression models.

For further research it would be interesting to have another model for the next Multiannual Financial Framework (2021-2017), to evaluate whether or not the results in the two models still hold or if there are new developments, although the effects of the COVID 19 pandemic, might distort the results, another interesting topic for research would be to compare the allocation of regional transfers in a small group of EU countries instead of all member states, using data from a more extent period of time, however that could pose some challenges since almost every EU country joined at a different point in time. As an example, there is a lot more data regarding allocation of EU transfers in Portugal or Greece, than in Romania or Croatia[10].

Finally, to extend this study, the same analysis could be done on a NUTS II level, it would provide a greater knowledge regarding the distribution of EU transfers, and it would give us a glimpse into regional dynamics regarding the allocation of EU transfers in all the members states and possibly the explanations for these dynamics.

## VI. Conclusion

This work project first objective was to identify the determinants of the European Union Regional transfers and it was developed based on the existence literature regarding the political economy of the determinants of EU regional transfers, during the literature

[10] Greece joined the EU in 1981, Portugal in 1986, Romania in 2007 and Croatia in 2013

review several economic and political factors were collected, based on that same and other literature others were added as possible determinants, this study focused on how and why those possible determinants affected the allocation of EU regional transfers our if they did not have any effect at all, in order to do that, two regressions models were built, using data spanning from 2000 to 2020, one for the MFF (2007-2013) and other for the MFF (2014-2020), the overall statistics shows that both models had a good explanatory power and were statistically significant. According to the results, the economic needs of each country are still the biggest determining factors in how EU transfers are allocated, rurality, lack of infrastructure, unemployment and GDP have a big influence in the amount of grants that a country receives and that is what is expected since their main goal is to reduce economic disparities between member states, however, as these disparities are reduced, so is the influence of economic factors, there has been a shift from the economic needs of each country, to the way they are able manage EU funds and how their citizens fell about the EU, the political influence has also shifted from party-based coalitions to a needs-based coalition, with countries lead by ideologically opposite leaders joining forces to influence the amount of grants that their countries obtain. Even though the inequalities between countries the European Union have diminished in the past years, they are still significant, and a lot of countries rely on EU transfers to end these inequalities, if the shift from economic to political factors continues, the EU regional transfers can start deviating even more from their main goal of correcting and reducing economic disparities between countries in the European Union, and that could jeopardize the economic development of the poorest EU member states. This is extremely important since the medium and long economic effects of the COVID 19 pandemic will most certainly aggravate these disparities, thus exponentially increasing the importance of EU regional transfers.

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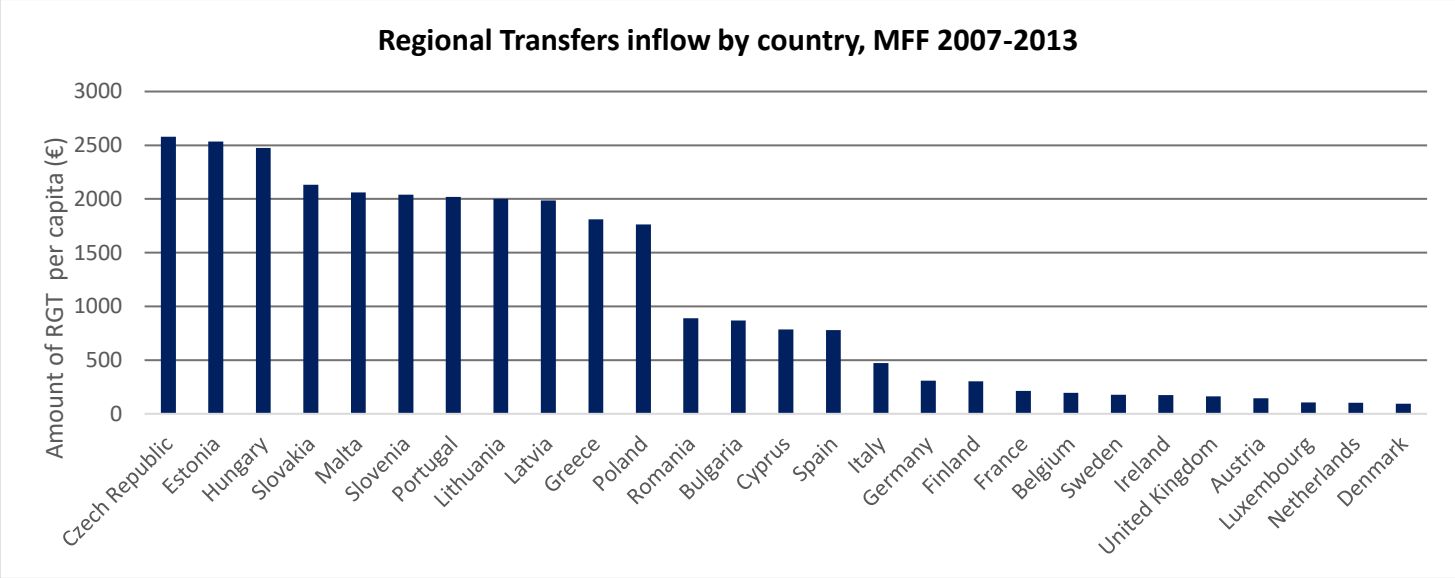
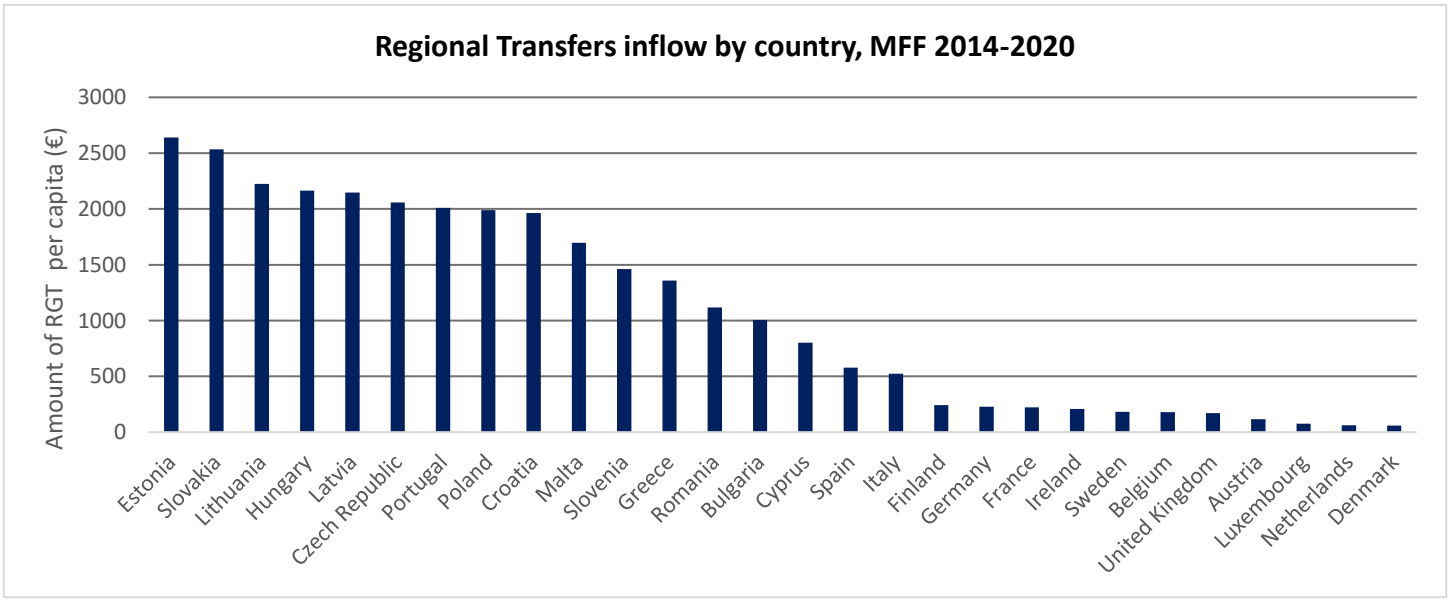
## VIII. Appendix:

Appendix 1: Inflow of EU regional transfers per capita in the Multiannual Financial Framework of 2007-2013. Source: EU Comission




Appendix 2: Inflow of EU regional transfers per capita in the Multiannual Financial Framework of 2014-2020. Source: EU Comission



Appendix 3: Detailed description of the dependent and explanatory variables

| Variable | Description |
|---|---|
| ***RGT* t** | The total amount of regional transfers per capita in the Multiannual Financial Framework of 2007-2013 and 2014-2020 for each member state. **Source: EU Commission** |
| ***GDPpc*** | The average Gross Domestic Product per Capita for each member state between 2000- 2006 and 2007- 2013. **Source: Eurostat** |
| ***UNEMP*** | The average Unemployment rate in each member state between 2000 - 2006 and 2007- 2013. **Source: Eurostat** |
| ***PRMSCT*** | The percentage that Agriculture, forestry, and fishing, represent in each country GDP between 2000- 2006 and 2007- 2013. **Source: World Bank** |
| ***NTDEBT*** | The average Unemployment National debt as a percentage of the Gross domestic product between 2000-2006 and 2007-2013 **Source: Eurostat** |
| ***POVRT*** | The average percentage of the population that is at risk of poverty in each EU country between 2000-2006 and 2007-2013. **Source: Eurostat** |
| ***POLAF*** | Binomial variable representing the political affiliation of each EU council representative (Prime Minister, Chancellor or President) in early 2006 and 2013. 0 is for members of the Progressive Alliance of Socialists and Democrats (S&D), nonaffiliated or European United Left–Nordic Green Left (GUE-NGL). 1 is for members of the European People's Party (EPP), Alliance of Liberals and Democrats for Europe (ALDE) or European Conservatives and Reformists (ECR) |
| ***RGTfraud*** | Fraud detected and reported as a percentage of cohesion policy funds received by EU Member States in the 2007-2013 programming period. **Source: European Anti-Fraud Office (OLAF)** |
| ***ABSP*** | The absorption rate of EU funds in the period between 2000-2006 and 2007-2013 **Source: EU Comission** |
| ***SELFG*** | Lijphart federalism or regional authority index, the score varies from 5, the most federalized country, to 1, the most centralized country. |
| ***EUROSPM*** | The percentage of people that answered in the Eurobarometer that EU membership of their country was a bad thing. **Source: Eurobarometer** |
| ***EPELECT*** | The share of the vote for Eurosceptic or Anti EU parties in the 2004 and 2009 European Parliament Elections |

Appendix 4: Dickey-Fuller tests

| MFF 2007-2013 | | | | MFF 2014-2020 | | | |
|---|---|---|---|---|---|---|---|
| Variables | Lag selection | Augmented Dickey-Fuller (time trend (t)) | Critical value | Variables | Lag selection | Augmented Dickey-Fuller (time trend (t)) | Critical value |
| log(rgt) | 2 | -2,81 | -3,238 | log(rgt) | 2 | -2,146 | -3,238 |
| gdppc | 2 | -0,853 | -3,238 | gdppc | 2 | -0,942 | -3,238 |
| unemp | 2 | -1,461 | -3,238 | unemp | 2 | -0,1653 | -3,238 |
| prmsct | 2 | -2,219 | -3,238 | prmsct | 2 | -1,034 | -3,238 |
| ntdebt | 2 | -1,472 | -3,238 | ntdebt | 2 | -1,954 | -3,238 |
| povrt | 2 | -2,102 | -3,238 | povrt | 2 | -2,850 | -3,238 |
| polaf | 2 | 1,21 | -3,238 | polaf | 2 | -1,981 | -3,238 |
| rgtfraud | 2 | -0,578 | -3,238 | rgtfraud | 2 | -0,109 | -3,238 |
| absp | 2 | -1,23 | -3,238 | absp | 2 | -1,013 | -3,238 |
| fedrl | 2 | -3,143 | -3,238 | fedrl | 2 | -3,185 | -3,238 |
| eurospm | 2 | -1,076 | -3,238 | eurospm | 2 | -1,285 | -3,238 |
| epelect | 2 | -2,907 | -3,238 | epelect | 2 | -3,025 | -3,238 |

*Reject the hypothesis of a unit root.